Space Weather Forecast

Issued on Tuesday, 27 August 2024 at 00:17 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Moderate Solar Activity likely. Chance of G1 Minor Storm intervals Day 1 (27 Aug) from coronal mass ejection glancing blow.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Activity was Moderate over the past 24hrs, with a single moderate class flare, peaking at M1.4 at 26/1141UTC from a large region in the southwest. This region has been growing and includes a very small mixed polarity spot. A large spot region in the southwest has continued to remain stable, becoming largely inactive. A region approaching south-centre disc has seen some recent growth on its intermediate spots, whilst other spots on the disc have showed signs of decay. Two new regions have been observed rotating around the eastern limb.

A large CME seen emerging off the southwest disc in coronagraph imagery is yet to be analysed. Currently awaiting further imagery for analysis.

No Earth-directed coronal mass ejections (CMEs) were observed.

Solar Wind / Geomagnetic Activity: Slow wind conditions dominated. Solar wind speed was at background, initially around 330km/s but has declined to current levels of 260km/s. Interplanetary Magnetic Field (IMF) was Weak, with the north-south component also varying weakly. Geomagnetic activity was Quiet (Kp0-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Further Moderate class flares are expected with a slight chance of isolated Strong flares.

Solar Wind /Geomagnetic Activity: A CME from the eruption off the northwest disc just after 23/0100UTC has been assessed as passing mainly ahead of Earth, but with a glancing impact likely early Day 1 (27 Aug). A coronal hole in centre disc may cause some slight enhancement to the solar wind later on Day 2 or early Day 3 (28-29 Aug).

Mainly Quiet geomagnetic activity is expected with occasional of Unsettled spells, primarily due to the aforementioned glancing CME or coronal hole effects. There is a chance of Active to G1 Minor Storm if the CME glance occurs, most likely on Day 1 (27 Aug).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background, but there is a chance of this rising in response to any notable flares, especially from the regions in the western disc. This gives a slight chance of exceeding the S1 Minor Solar Radiation Storm level.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	30	5	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	70	70	70	70
Very Active	R3 to R5 X	No	10	10	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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